HS-200 High Speed Fabric Door

(Direct Drive Operator & Full Vision Panel)

INSTALLATION INSTRUCTIONS
&
SERVICE MANUAL

Serial No.: __.

Customer: ___.

Opening Size: __.

Overall Height of Guide: __ Inches

Guide Opening Width (tip to tip): **__ Inches**

Contents

- Preface
- Introduction
- Installation Instructions
- Maintenance and Repairs
- Parts List
- Warranty

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PREFACE

The main purpose of this manual is to assist with the installation and maintenance of your new ***HS-200 High Speed Fabric Door*** system with the emphasis on proper installation procedures, safety of operation, and replacement parts list. While various construction and electrical procedures are outlined, please refer to particular codes for you area.

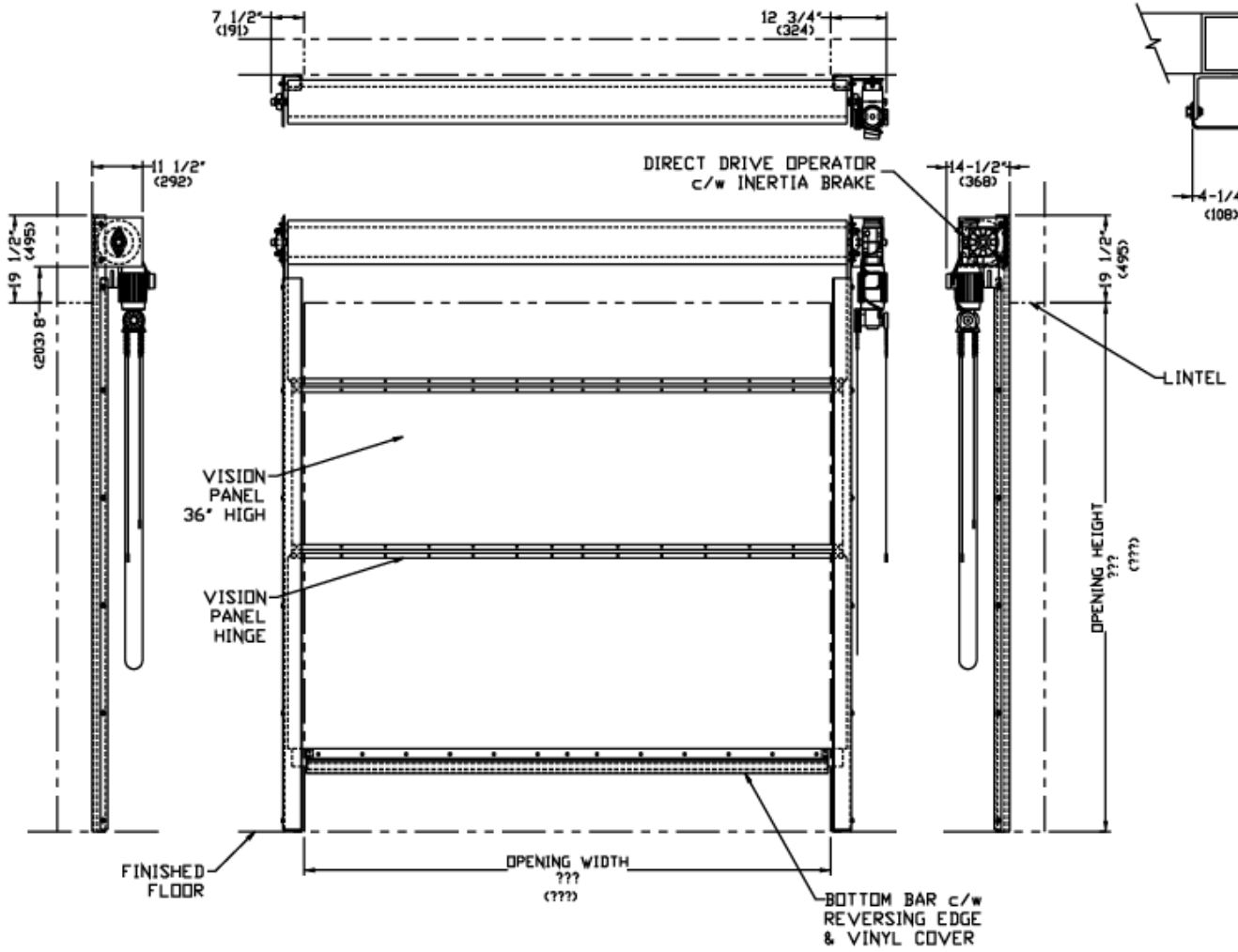
INTRODUCTION

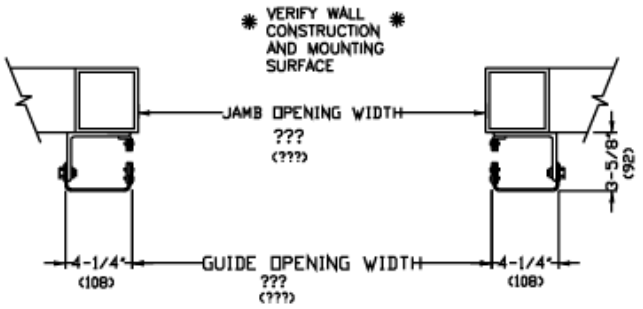
DOOR PARTS

The Shop Drawing on the following page shows the major components of the ***HS-200 High Speed Fabric Door***. *(For more detail, please refer to the parts list near the end of this manual.)*

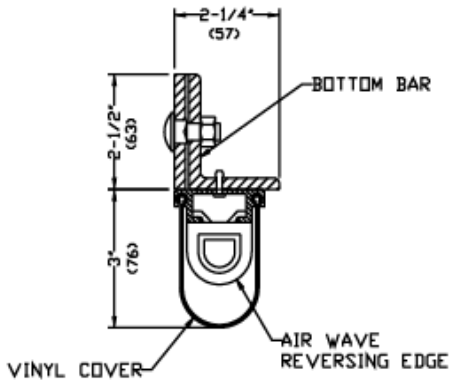
Please define all parts by the names shown on this drawing and throughout this manual. When technical information and or replacement parts are required, please provide the following data to ensure prompt and efficient service.

1) The **SERIAL NUMBER** of your door system
2) The **OPENING SIZE** (width x height)
3) The **TYPE & HANDING OF OPERATOR** (left or right)
4) The operator motor voltage





STEEL MOUNTED GUIDE LAYOUT



SECTION VIEW THRU BOTTOM BAR

GENERAL NOTES

- THIS DRAWING COVERS GENERAL CONDITIONS, DIMENSIONS, AND SPECIFICATIONS ONLY. DO NOT USE FOR INSTALLATION PURPOSES. INSTALLATION INSTRUCTIONS AND DIMENSIONS ARE INCLUDED WITH SHIPMENT.
- DIMENSIONS IN BRACKETS () ARE IN MILLIMETERS.

APPROVED BY:_____ **DATE:**_____

DOOR OPTIONS

CURTAIN MATERIAL: ■ PVC FABRIC - BLUE

■ 3" VINYL COVER FOR REVERSING EDGE	☐ FLOOR LOOP
■ 36" HIGH FULL VISION PANEL	☐ REMOTE PUSH BUTTON STATION
■ PHOTO CELL - ONE REFLECTIVE	☐
■ VARIABLE FREQUENCY DRIVE	☐
■ ROTARY DISCONNECT	☐
■ TIMER TO CLOSE	☐
☐ RADIO RECEIVER	☐
☐ RADIO TRANSMITTER CT-1 - TWO	☐

ELECTRICAL SPECIFICATIONS

OPERATOR: DIRECT DRIVE
NEMA: 4 DOOR SPEED: 36 IPS
VOLTAGE: ??? PHASE: 3 CYCLES: 60

CONTROL PANEL: NEMA 4
REMOTE PUSH BUTTON ST'N: N/A

GENERAL INFORMATION

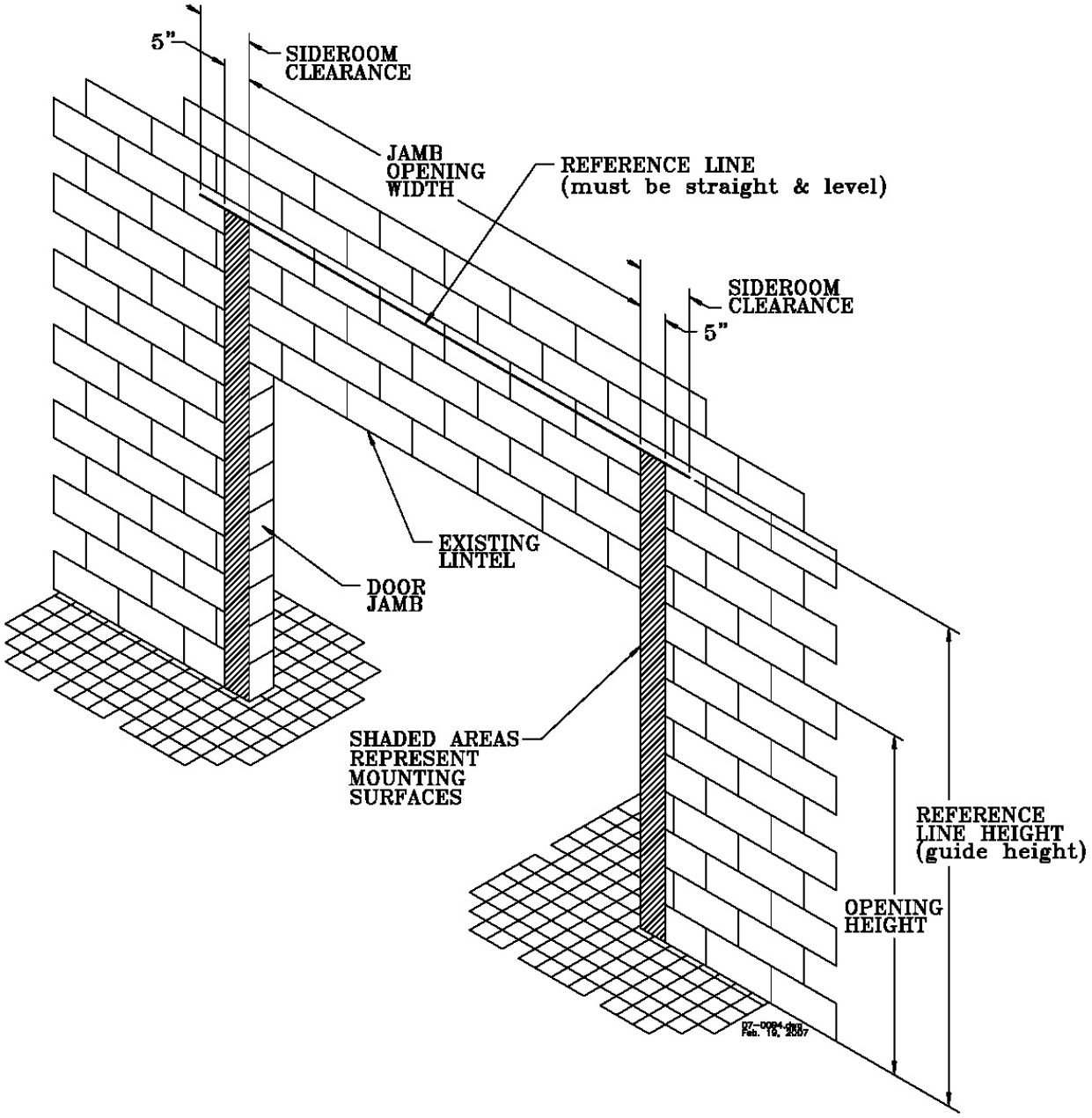
APPROXIMATE DOOR WEIGHT: ??? LBS

TITLE: SHOP DRAWING
DOOR TYPE: R.H. ROLLING HIGH SPEED DOOR HS-200
FEATURES: 36" HIGH VISION PANEL
LIMITATIONS: AS ILLUSTRATED

COMPLETED BY: ???		REV./DATE: RELEASE
END USER: ???		DATE DR'N: MAR. 26, 2007
DISTRIBUTOR: ???		DR'N BY: R.B.
DATE COMPLETED: ???	SERIAL NO.: ???	DWG NO.: HS200-RH-GFA

INSTALLATION INSTRUCTIONS

STEP "A" – PREPARATION OF THE DOOR OPENING



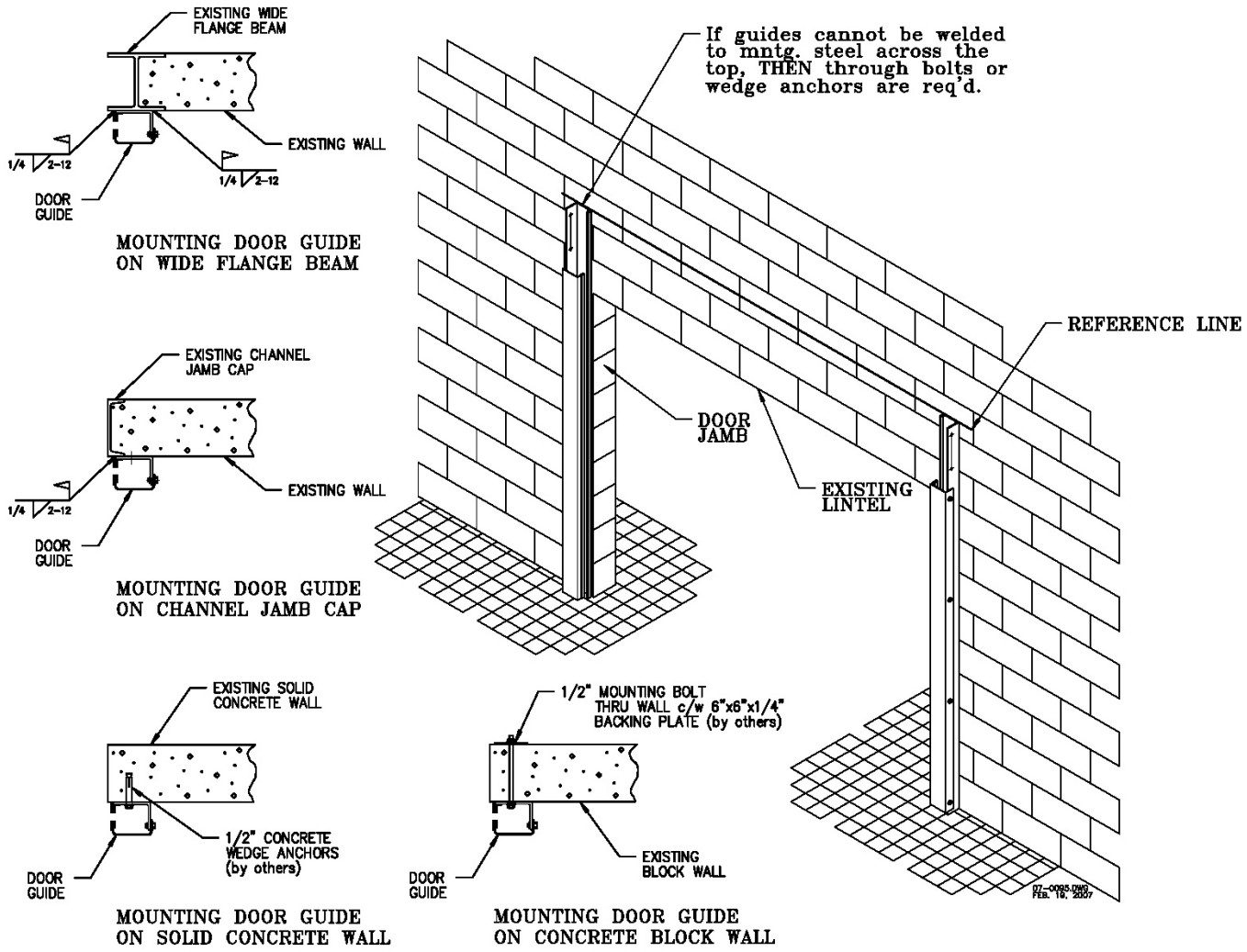
Although the actual mounting procedures are different between steel and masonry walls common prerequisites are required for all door systems.

All door systems will require a certain amount of headroom and sideroom clearances. See Shop Drawing supplied with each door for specific details

All door systems must be mounted level. Draw a reference line at a distance equal to the overall height of the guide (this measurement can be found on the front cover page), above the floor extending to the extremities of the sideroom clearances. Take extreme care to ensure that this line is straight and level because the entire door is positioned according to this reference line. A transit or water hose level is recommended.

All mounting surfaces must be flat and flush to each other.

STEP "B" – INSTALLAING THE DOOR GUIDES


EXISTING WIDE FLANGE BEAM
EXISTING WALL
1/4 2-12
1/4 2-12
DOOR GUIDE
MOUNTING DOOR GUIDE ON WIDE FLANGE BEAM
EXISTING CHANNEL JAMB CAP
EXISTING WALL
1/4 2-12
DOOR GUIDE
MOUNTING DOOR GUIDE ON CHANNEL JAMB CAP
EXISTING SOLID CONCRETE WALL
1/2" CONCRETE WEDGE ANCHORS (by others)
DOOR GUIDE
MOUNTING DOOR GUIDE ON SOLID CONCRETE WALL
1/2" MOUNTING BOLT THRU WALL c/w 6"x6"x1/4" BACKING PLATE (by others)
EXISTING BLOCK WALL
DOOR GUIDE
MOUNTING DOOR GUIDE ON CONCRETE BLOCK WALL
If guides cannot be welded to mntg. steel across the top, THEN through bolts or wedge anchors are req'd.
REFERENCE LINE
DOOR JAMB
EXISTING LINTEL
07-0095.DWG FEB. 16, 2007

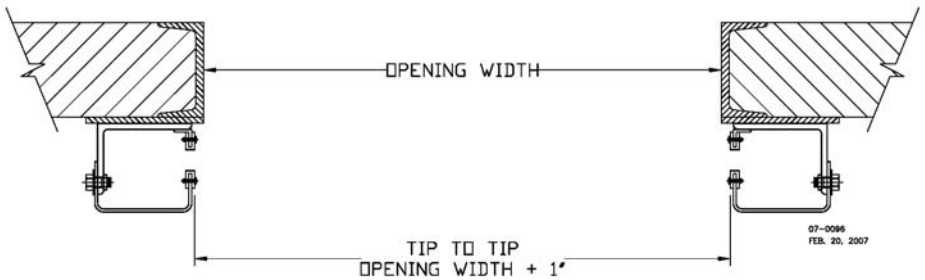
Regardless of which way **YOU** decide to attach the Guides to the existing wall (typical cross sections of Guide mounting suggestions are shown above), the Guides must be:

PERPENDICULAR (90°) to the reference line within 1/4" along the complete height of the Guide.

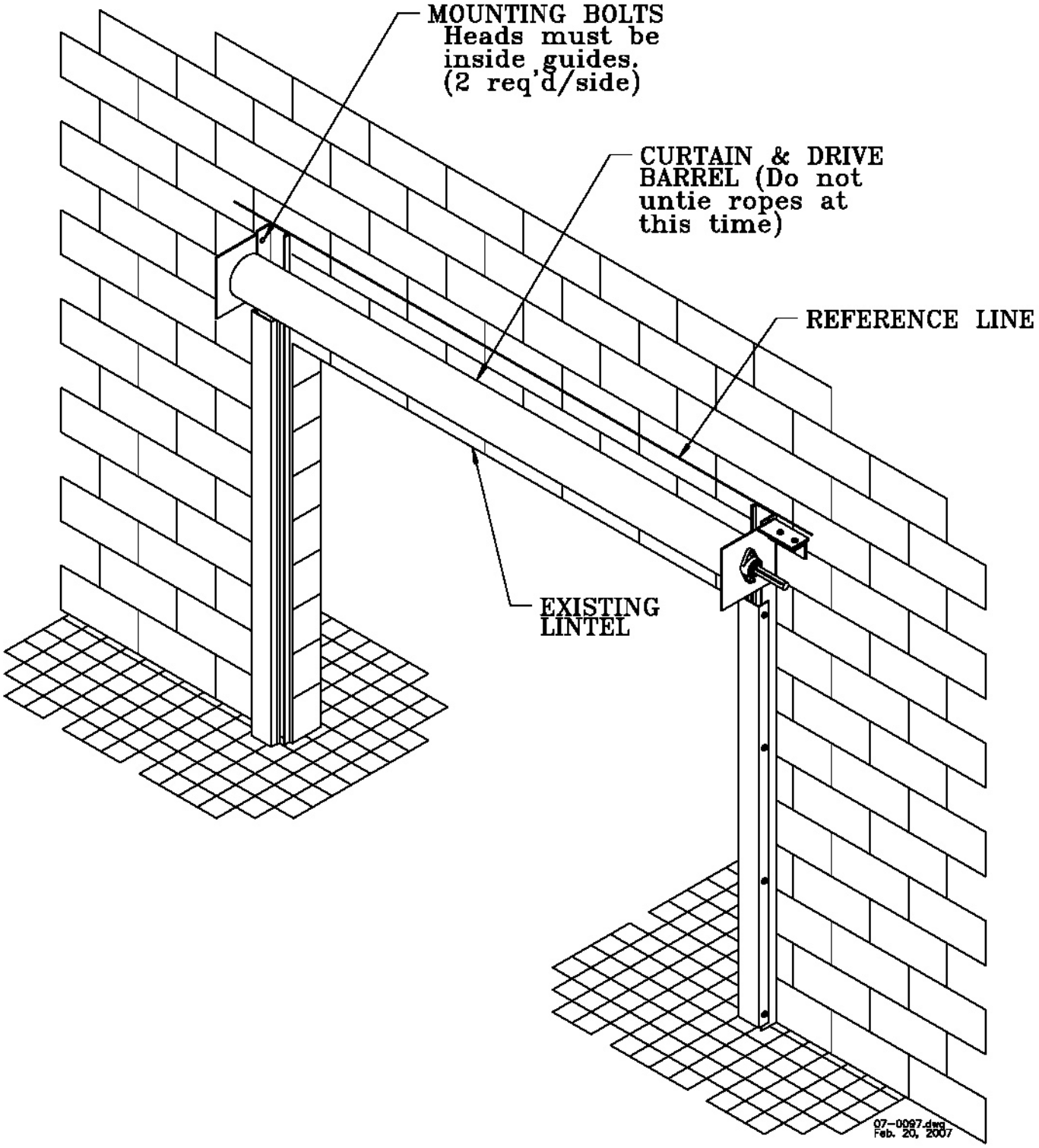
PARALLEL to each other within 1/4" along the complete height of the Guide.

LEVEL at the top of the Guide within 1/4" over the entire width of the door.

The top of the guides must be at the reference line height (see illustration above). The Guide Opening Width (tip to tip) measurement can be found on the front cover page. (see illustration below for tip to tip location)



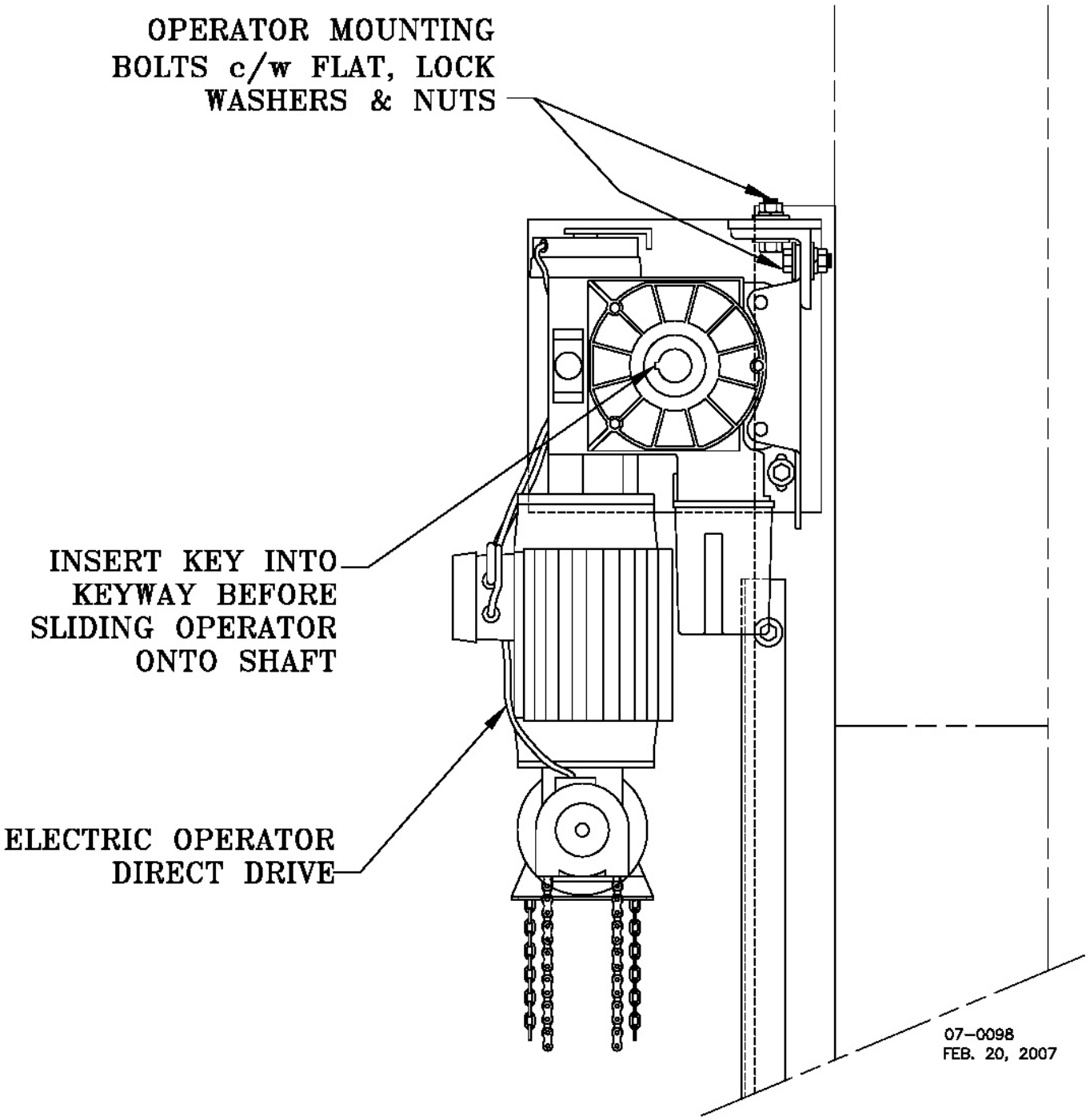
STEP "C" – INSTALLING THE HEADER ASSEMBLY



The Header Assembly should be hoisted into position with two (2) slings around the Curtain and Drive Barrel **ONLY.** *Extreme care must be taken to avoid damage to the Curtain and the Reversing Edge.* Once the door has been hoisted up into position, loosely bolt the Head Plates to the Guides using the four (4) bolts with flat washers, lock washers, and hex nuts which were supplied with door. The Header Assembly should be leveled (for guidance use the top of the Head Plates and the reference line). Tighten all four (4) mounting bolts. This may require final adjustment after the Curtain is hanging in the opening.

CAUTION!! DO NOT UNTIE THE ROPES FOR THE CURTAIN AT THIS TIME.

STEP "D" –INSTALLING THE DOOR OPERATOR



Carefully, tap the supplied Key into the keyway on the Drive Shaft. Slide the Operator onto the shaft. Loosely install the Operator Mounting Bolts. There is enough adjustment on the Torque Bracket to square the Operator to the wall. Tighten all bolts once the operator is hanging straight.

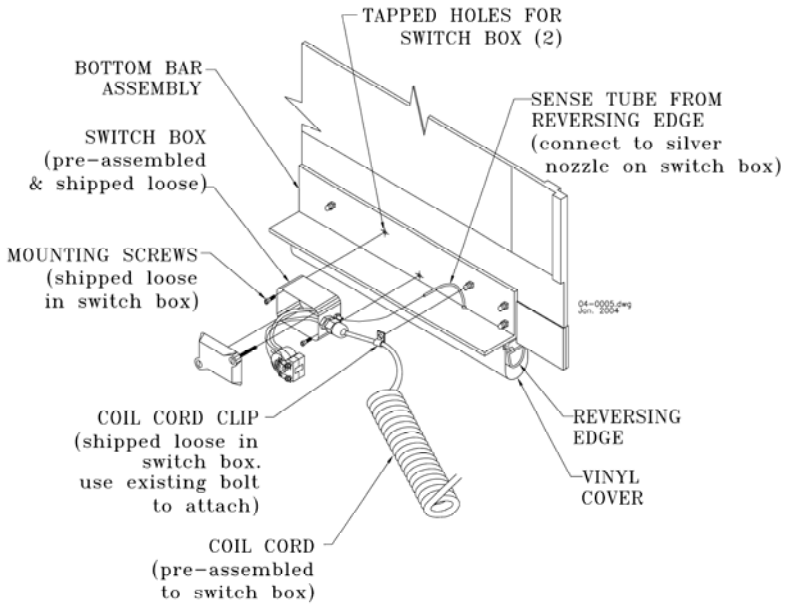
STEP "E" – ADJUSTING THE CURTAIN

The ropes keeping the Curtain wrapped on the Drive Barrel can now be removed only if Step "D" has been completed. After the ropes have been removed manually feed the Bottom Bar and Curtain into the top of the Guides and lower the door to the almost closed position.

The Drive Barrel must be centered at this time. To accomplish this, loosen the set screws in both of the Flanged Bearings on the Head Plates and shift the Drive Barrel into position. Check to ensure the Drive Barrel is centered by measuring the space between the inside of the Head Plate and the edge of the Drive Barrel. This distance should be equal at both ends of the Drive Barrel. Re-tighten all set screws so that the Drive Barrel can not shift at a later date.

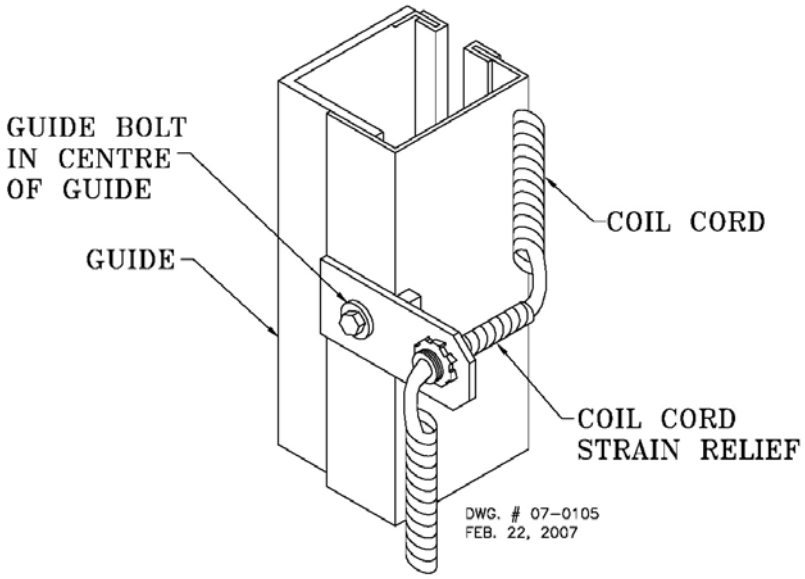
The Arms on the Bottom Bar should be centered within the Guide's from side to side. If they aren't raise and or lower the Head Plates as necessary. Once the Bottom Bar is centered and the Curtain is hanging straight in the guides, tighten the Head Plate bolts. Return the door to the midway point.

STEP "F" – CONNECTION OF THE REVERSING EDGE


TAPPED HOLES FOR SWITCH BOX (2)
BOTTOM BAR ASSEMBLY
SENSE TUBE FROM REVERSING EDGE (connect to silver nozzle on switch box)
SWITCH BOX (pre-assembled & shipped loose)
MOUNTING SCREWS (shipped loose in switch box)
COIL CORD CLIP (shipped loose in switch box. use existing bolt to attach)
REVERSING EDGE
VINYL COVER
COIL CORD (pre-assembled to switch box)

Attach the preassembled Reversing Switch Box to the Bottom Bar using the two (2) screws found inside the Switch Box. Attach the Coil Cord to the Bottom Bar using the Coil Cord Clip found inside the Switch Box. Connect the Coil Cord to the terminal strip located in the Control Panel.

Attach the coil cord strain relief to the coil cord strain relief bracket. The coil cord strain relief bracket is mounted at approximately half opening height. Use the existing guide bolts. Once the coil cord strain relief bracket is attached to the door feed the coil cord through the strain relief until there is enough coil cord for the bottom bar to travel the full opening height without restriction. See diagrams below.



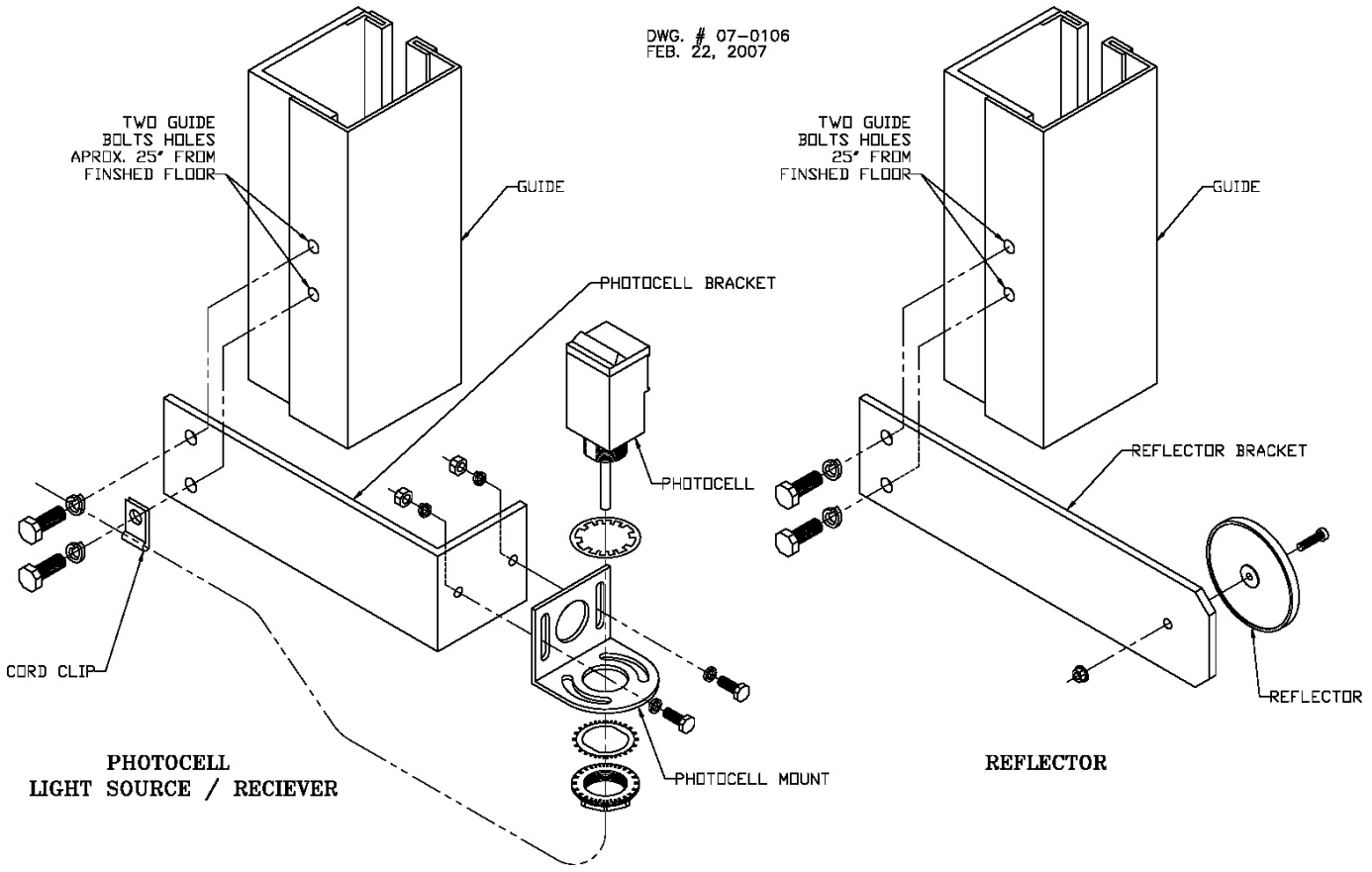
COIL CORD RESTRAINT INSTALLATION

Caution!!

Too much slack in the coil cord may cause it to get caught or break the photocell beam and reverse the door. Too little slack in the coil cord may cause damage.

STEP "G" MOUNTING THE PHOTOCELL

The mounting procedures for both a thru beam photocell and reflective photocell are the same. For a thru beam photocell there will be a light source and a receiver. For a reflective photocell there will be a light source and a reflector. Preassemble the photocell and reflector to the brackets as illustrated below. The photocell mount attaches to the photocell bracket using the 1/4" bolts, flat washers, lock washers, and hex nuts supplied. The reflector mounts directly to the reflector bracket using the #10 screw and flanged lock nut supplied. All of the brackets mount to the guide the same way, using the existing guide bolts that are 25" up from the bottom of the guides. Remove the existing Guide Bolts and lock washers and place the bracket on the guide bolts and re-install the Guide Bolts and lock washers that you just removed. Be sure to run the cord from the photocell through the supplied cord clip and attach the cord clip to the lower guide bolt as illustrated to keep the photocell cord secure. Adjust the alignment of the photocell as necessary and tighten all of the mounting hardware.



STEP "H" – WIRING TO THE CONTROL PANEL

Consult local electrical codes before proceeding with permanent installation.

WARNING!

Exercise caution when engaging the electric operator. The drive and limit chains are exposed and if turning could cause injury.

Wiring instructions can be found inside the Control Panel. Mount the Control Panel as required and connect the Control Panel to a properly grounded supply.

There are two cables connected to the operator. One is for the supply power and the other is for the control wiring. **NOTE:** *DO NOT PUT THESE TWO CABLES IN THE SAME CONDUIT AS IT WILL CAUSE INTERFERENCE, AND THE DOOR WILL NOT OPERATE PROPERLY.*

Make the motor connections as follows:
#1 wire OR U connects to terminal 1
#2 wire OR V connects to terminal 2
#3 wire OR W connects to terminal 3
To reverse motor rotation reverse any two leads going from the control panel to the operator.
See Diagram #1

Make the brake connections as follows:
#7 wire connects to terminal 51
#8 wire connects to terminal "N"
**NOTE THE JUMPER FROM TERMINAL 53 TO TERMINAL "L"*
See Diagram #1

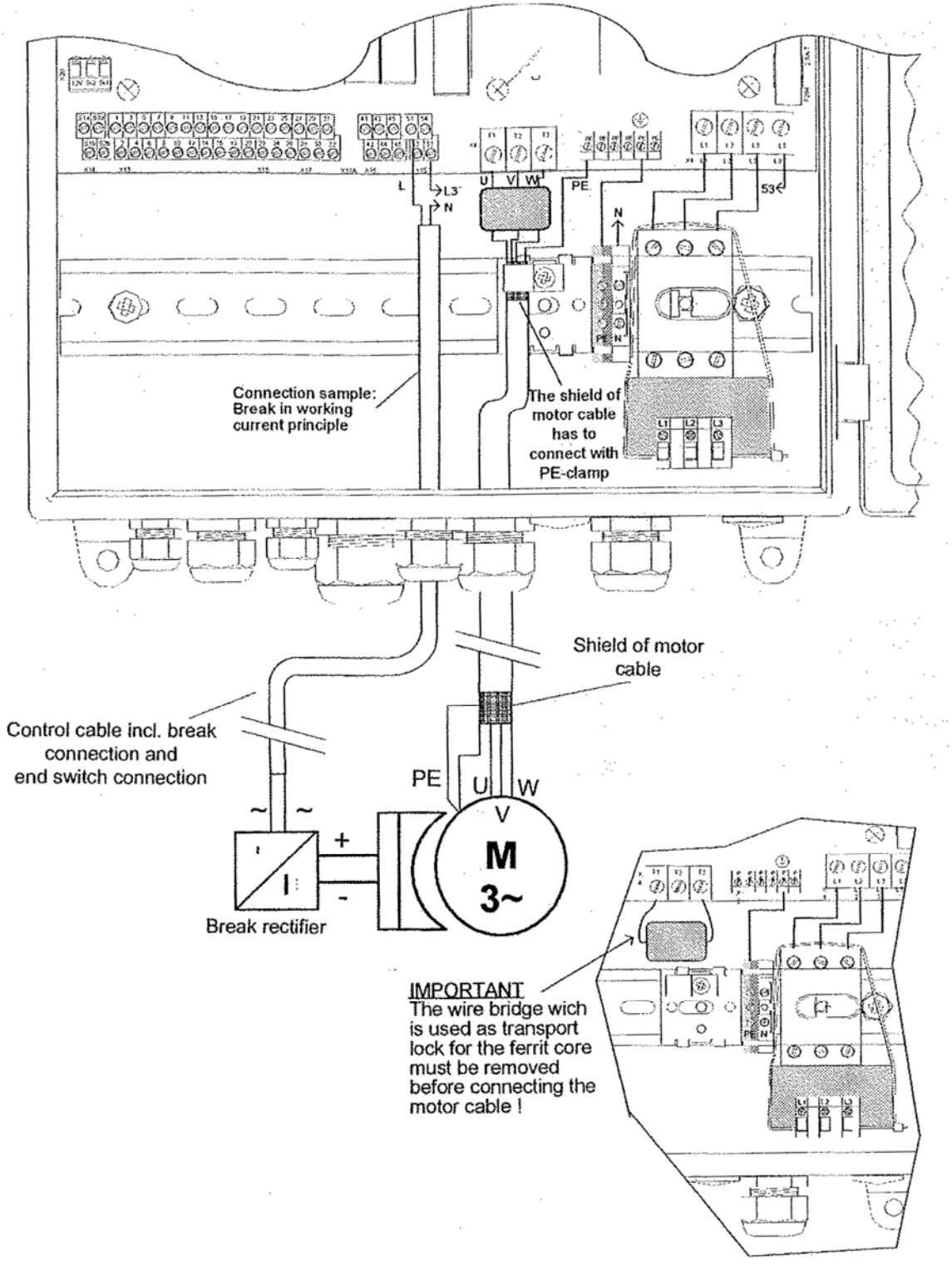


Diagram #1

Make the photocell connections as shown in diagram #2.

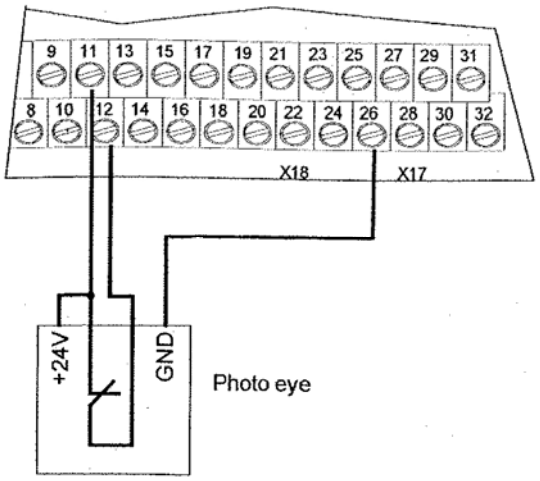


Diagram #2

If you are using a remote push button station or an auxiliary open device, make all of the connections for all of the open commands in parallel before connecting to the control panel if you are using more than one open device. Make all of the connections for all close commands in parallel before connecting to the control panel if you are using more than one close device. Make all connections for stop commands in series if you are using more than one stop device before connecting to the control panel. Make the final connections to the control panel as illustrated in diagram #3.

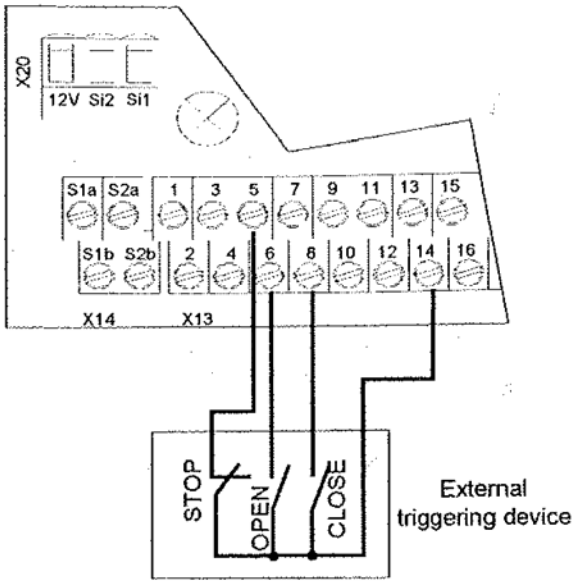


Diagram #3

Connect the reversing edge to terminals S1 and S2. If you remove the resistor connected to these terminals, be sure to reinsert it. Failure to do so will cause the door to not function properly.

If installing a ground loop make the contact connections to terminals S1a and S1b. If installing a second ground loop make the contact connections to terminals S2a and S2b. If you are not going to be using a ground loop, do not remove the jumper between terminals S1a and S1b, as well as the jumper between terminals S2a and S2b.

Make the encoder connections as follows:
#6 wire connects to terminal 27
#3 wire connects to terminal 28
#2 wire connects to terminal 29
#4 wire connects to terminal 31
See diagram #4

Make the chain hoist connections as follows:
#5 wire connects to terminal 3
#1 wire connects to terminal 4
#7 wire not used
#8 wire not used
See diagram #4

Below is an overview of all inputs.

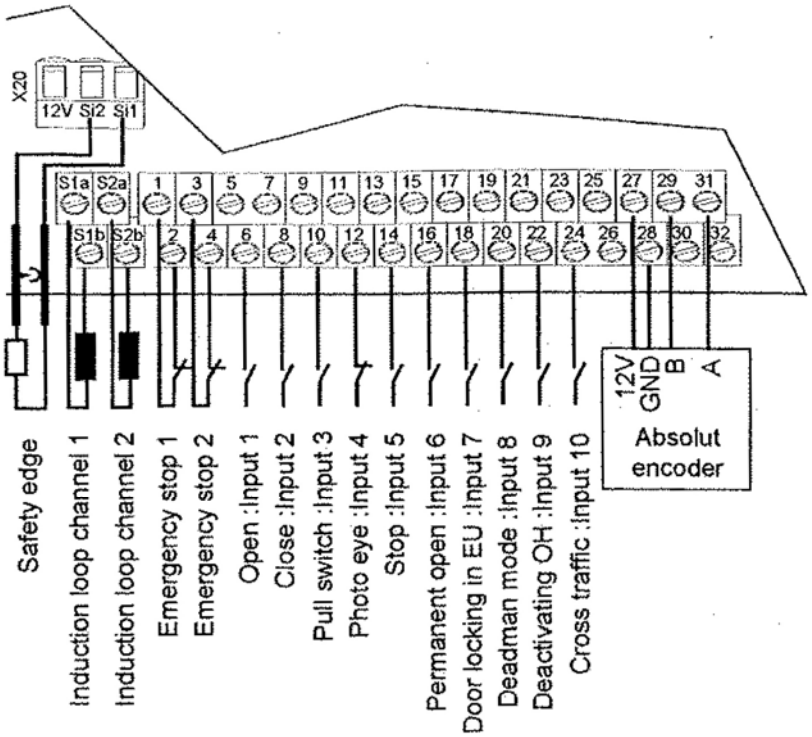

X20
12V Si2 Si1
S1a S2a 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
S1b S2b 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32
12V GND B A
Absolut encoder
Safety edge
Induction loop channel 1
Induction loop channel 2
Emergency stop 1
Emergency stop 2
Open :Input 1
Close :Input 2
Pull switch :Input 3
Photo eye :Input 4
Stop :Input 5
Permanent open :Input 6
Door locking in EU :Input 7
Deadman mode :Input 8
Deactivating OH :Input 9
Cross traffic :Input 10

Diagram #4

NOTE: *THIS UNIT MUST BE PROPERLY GROUNDED*

STEP "I" – LIMIT SWITCH ADJUSTMENT

Once the door has been powered up and all of the connections have been checked, the limits can be set. To set the initial limits follow the instructions below.

1) Open the control panel door and set the DIP switch, located in the upper right corner of the circuit board, to on (UP).

2) Close the control panel door, turn the power on, and press the large emergency stop button on the control panel door.

3) Using ▲ and ▼ buttons on the keypad on the control panel door, go to P.210 and press the stop button on the keypad.

4) Go to 5 using the ▲ and ▼ buttons on the keypad and press and hold the stop button until the question mark turns into a check mark.

5) Pull out the emergency stop button on the control panel door.

6) Using the ▼ button on the keypad, lower the door until it is at the desired closed position and press the stop button on the keypad.

7) Using the ▲ button on the keypad, raise the door until it is at the desired open position and press the stop button.

8) Return the DIP switch in the upper right corner of the circuit board to off (DOWN).

To fine adjust the limits once they have been set follow the instructions bellow. Before beginning, position the bottom bar at the limit you intend to adjust.
NOTE: *This adjustment is only meant to make minor corrections to the final positions.*

1) Open the control panel door and set the DIP switch, located in the upper right corner of the circuit board, to on (UP).

2) Close the control panel door, turn the power on, and press the large emergency stop button on the control panel door.

3) Using ▲ and ▼ buttons on the keypad on the control panel door, go to P.221 for the upper limit and P.231 for the lower limit and press the stop button on the keypad.

4) Using the ▲ and ▼ buttons on the keypad, adjust the stopping position of the door. Each increment is approximately ½". Press and hold the stop button until the question mark turns into a check mark.

5) Return the DIP switch in the upper right corner of the circuit board to off (DOWN).

This process may need to be repeated until you are satisfied with the final position.

STEP "J" – ADJUSTING THE TIMER TO CLOSE

1) Open the control panel door and set the DIP switch, located in the upper right corner of the circuit board, to on (UP).

2) Close the control panel door, turn the power on, and press the large emergency stop button on the control panel door.

3) Using ▲ and ▼ buttons on the keypad on the control panel door, go to P.010 and press the stop button on the keypad.

4) ▲ and ▼ buttons on the keypad on the control panel door, set the value for the timer to close. Press and hold the stop button until the question mark turns into a check mark.

5) Return the DIP switch in the upper right corner of the circuit board to off (DOWN).

Trouble Shooting

Although every situation that may occur can not be anticipated the following trouble shooting guide covers some of the more common circumstances.

Problem	Possible Cause	Solution
Curtain Hangs up	-Guide gap is too narrow -Bottom Bar not centered between guides -Drive Barrel Shifted to one side -Guides installed incorrectly	-Check and adjust guide gap if necessary -Raise or lower one side of the header -Center drive barrel between head plates -Reinstall guides
Door does not operate electrically	-Blown Fuse -Tripped breaker -Tripped motor overload -Door disconnect turned off -Manual chain hoist not returning properly	-Check fuses and replace if necessary -Check circuit breaker in building -Reset overload -Turn on door disconnect -Reset Chain Hoist
Door reverses when closing	-Sensitivity on floor loop too high -Sensitivity on reversing edge too high -Coil cord tripping photocell -Photocells misaligned	-Adjust loop sensitivity -Adjust reversing edge sensitivity -Ensure coil cord can travel through full range of motion freely and adjust/trim if necessary -Realign photocells
Reversing edge does not reverse door	-Sensing tube is kinked -Sensitivity set too low -Hole in reversing edge -Wired incorrectly -Faulty switch -Faulty relay	-Check sensing tube for kinks in box and from box to reversing edge and replace if necessary -Increase sensitivity -Replace reversing edge -Trace wiring -Replace switch -Replace relay
Photocell does not reverse door	-Sensitivity set too low -Wired incorrectly	-Raise sensitivity -Trace wiring
Open button closes door/Close button opens door	-Phasing from incoming power is incorrect	-Reverse any two Motor Leads at the Motor (L1, L2, L3)
Motor starts up but door does not move/trips overload	-Brake is not releasing	-Check brake connections for loose wires and for correct wiring to terminals
Door slips when it stops	-Brakes worn	-Adjust and/or replace brake

For further assistance call (905) 670 1200 ext. 220

If the control panel gives you a fault code, refer to the charts on the following pages for assistance.

Fault Codes

Improper end positions		
F.000	Door position too far up	• Too small a parameter value for upper emergency limit switch • Upper limit switch range (limit switch band) too small • Mechanical brake defective or improperly set
F.005	Door position too far down	• Too small a parameter value for lower emergency limit switch • Lower limit switch range (limit switch band) too small • Mechanical brake defective or improperly set

Implausibilities in door movement		
F.020	Run time exceeded (during opening, closing or deadman)	• current motor run time has exceeded set maximum run time, door may be sticking or is blocked • If using mechanical limit switches, one may not have tripped
F.030	Lag error (position change of the door is less than expected)	• Door or motor is blocked • Too little power for lift torque • To little speed • Mechanical limit switch was not left or is defective • Absolute or incremental encoder not tightened sufficiently in its mounting • Wrong positioning system selected (**P.205**)
F.031	Detected rotational direction deviates from expected	• When using incremental encoders: Channel A and B reversed • Motor rotation direction reversed compared with calibration setting • Too much „pancaking" when starting, brake releases too soon, or too little torque, adjust boost as necessary.
F.043	Pre-limit switch fault (light barrier)	• The pre-limit switch for the light barrier remains activated even in the middle end position or upper end position.

Error messages for incremental encoder		
F.050	Reference switch position deviates from permissible range. During cyclical synchronization	• Reference switch constantly tripped (defective) • Reference switch trips too far from the selected reference. • Reference switch trips in the limit switch band • P270 and P280 are both at the reference switch
F.051	Reference switch position deviates from permissible range.	• Reference switch lies in the limit switch band • Reference switch is beyond 15% EO • Reference switch defective
F.052	Reference switch not recognized	• The reference switch is not recognized within 20% EO during automatic synchronization after power-on • The reference switch is not recognized in the associated end position.

Maintenance counter exceeded		
F.080	Fault: Maintenance is required	• Service counter has expired

Parameters not set		
F.090	Controller not parameterized	• The basic parameters (P.205, P.100 to P.103) for the TST FU3E controller have not yet been set.

Safety chain faults		
F.201	Internal E-Stop „push-button" tripped or Watchdog (computer monitor)	• E-Stop chain was interrupted starting at input „internal E-Stop" without parameterizing mode having been selected • Internal parameter or EEPROM checks defective, pressing the STOP key provides additional information about the cause
F.211	External E-Stop 1 tripped	• E-Stop chain was interrupted starting at Input 1
F.212	External E-Stop 2 tripped	• E-Stop chain was interrupted starting at Input 2

Faults in the safety chain		
F.360	Short circuit detected on edge input	• Short circuit detected on edges with normally closed contact
F.361	Number of edge trips for closing has reached set limit	• Parameterized, maximum number of safety edge trips during a door cycle was exceeded
F.362	Redundancy error with short circuit	• One of the processing channels for short circuit detection does not react identically with the second channel. → Controller board defective
F.363	Interruption on edge input	• Connection cable defective or not connected • Termination resistor incorrect or missing • Jumper J600 incorrectly set
F.364	Safety edge testing failed	• Safety edge was not activated as expected when requesting a test. • The time between request for testing and actual testing not in agreement
F.365	Redundancy error with interruption	• One of the processing channels for interruption detection does not react identically with the second channel. → Controller board defective • Dynamic optical system connected but not set in Parameter P.460
F.366	Too high a pulse frequency for optical safety edge	• Defective optical safety edge Defective input for internal safety edge
F.369	Internal safety edge incorrectly parameterized	• An internal safety edge is connected but deactivated
F.373	Fault in the safety edge (message comes from module)	• Cable break to safety edge, no edge connected, edge termination resistor incorrect or defective • Jumper for termination resistor definition in wrong position. • Safety edge processing selected with Parameter **P.470**, but module not plugged in or wrong module.
F.374	Safety bar testing failed	• Pre-limit switch for safety edge incorrectly set or defective • Processing module defective • Safety edge defective
F.379	Safety edge detection defective (coding pin or parameter setting)	• No module plugged in but was reported as present by a parameter • The controller was started up with another module than the one currently plugged in

Faults in the safety chain		
F.385	Fault in pre-limit switch for safety edge	• Pre-limit switch for turning off the safety edge or reversing after safety edge tripping remains tripped even in the upper end position.

General hardware faults		
F.400	Controller hardware reset detected	• Excessive noise on supply voltage • Internal watchdog tripped • RAM error
F.410	Over-current (motor current or intermediate circuit)	• Wrong motor data set (P100 – P103) • Non-adjusted voltage increase / boost set (P140 or P145) • Motor not properly dimensioned for door • Door sticks
F.420	Overvoltage in intermediate circuit Limit 1	• Brake chopper interference / defective / missing • Feed voltage much to high • Motor feeds back too much energy in generator mode, door motion energy cannot be sufficiently brought down
F.430	Temperature cooler outside of working range Limit 1	• Excessive load on final stages or brake chopper • Ambient temperature too low for controller operation • Clock frequency of final stage too high (Parameter **P.160**)
F.440	Overcurrent in intermediate circuit Limit 1	• Boost not adjusted • Motor incorrectly dimensioned for door • Door sticks
F.510	Motor / intermediate circuit overcurrent Limit 2	• Wrong motor data set (P100 – P103) • Non-adjusted voltage increase / boost set (P140 or P145) • Motor not properly dimensioned for door • Door sticks
F.515	Motor protection function detected overcurrent	• Incorrect motor curve (motor rated current) set (P101) • Too much boost (P140 or P145) • Motor incorrectly dimensioned
F.519	IGBT driver chip detected overcurrent	• Short circuit or ground fault on motor terminals • Motor rated current setting extremely wrong (P100) • Extremely too much boost (P140 or P145) • Motor incorrectly dimensioned • Motor winding defective • Momentary interruption of the E-Stop circuit.
F.520	Overvoltage in intermediate circuit Limit 2	• Brake chopper interference / defective / missing • Feed voltage much to high • Motor feeds back too much energy in generator mode, door motion energy cannot be sufficiently brought down.
F.521	Overvoltage in intermediate circuit	• Input voltage supply too low, usually at load • Load too great / final stage or brake chopper fault

General hardware faults		
F.524	Ext. 24 V supply missing or too low	• Overload but no short circuit • When 24V is shorted the controller voltage does not ramp up and glow lamp V306 comes on.
F.530	Temperature cooler outside of working range Limit 1	• Excessive load on final stages or brake chopper • Ambient temperature too low for controller operation • Clock frequency of final stage too high (Parameter **P.160**)
F.540	Overcurrent in intermediate circuit Limit 2	• Boost not adjusted • Motor incorrectly dimensioned for door • Door sticks

Positioning system faults		
F.700	Position sensing defective	**For mechanical limit switches**: • At least one limit switch does not correspond to the configured active status. • An implausible combination of at least 2 active limit switches **For electronic limit switches**: • After invoking activation of the factory parameters (Parameter **P.990**) the corresponding positioning system was not parameterized. • Calibration not completed or is incorrect and must be repeated. • When activating the intermediate stop the intermediate stop is implausible. • Synchronization not finished or reference switch defective.
F.720	Synchronization error in position sensing with incremental encoder	• Intermediate stop position is less than the minimum incremental value (25). • Synchronization was not finished. • The selected reference switch was not reached or is outside its tolerance • The incremental encoder is not counting or the door is blocked (also F.030, lag error) • Incremental inputs IN 9 and IN 10 are reversed (also F.031 rotation error)
F.750	Protocol Transmission error	• Defective hardware or electrically noisy environment
F.751	Synchronization FU <-> absolute encoder	• Defective hardware or electrically noisy environment • Absolute encoder processor electronics defective
F.752	Timeout with protocol transmission	• Interface cable defective / interrupted • Absolute encoder processor electronics defective • Defective hardware or electrically noisy environment
F.760	Position outside of window	• Position encoder drive defective • Absolute encoder processing electronics defective • Defective hardware or electrically noisy environment
F.761	Distance Channel 1 <-> Channel 2 outside allowed window	• Position encoder drive defective • Defective hardware or electrically noisy environment

Positioning system faults		
F.762	Electronic limit switch positions incorrect	• Upper limit switch Eo or intermediate limit switch E1 has exceeded the valid limit range • Controller not yet initialized • Position values during calibration not correct or values are no longer plausible

MAINTENANCE & REPAIR

Due to the unique design features of your new ***HS-200 High Speed Fabric Door***, the need for continual maintenance normally associated with conventional door systems (i.e.: guide rollers, hinges, door tracks, etc.) is virtually eliminated. The limited maintenance procedures listed below, when completed as indicated, will assure many years of trouble free operation.

MAINTENANCE PROCEDURE	AFTER INITIAL 1 500 CYCLES	EVERY 25 000 CYCLES OR 3 MONTHS	EVERY 100 000 CYCLES OR 12 MONTHS
LUBRICATION			
DO NOT GREASE CURTAINS OR GUIDES			
Flange Bearing (2)	No	No	Grease, one (1) shot
Gear Reducer	No	Check Level	Check Level
			(Change oil every 200 000 cycles)
ADJUSTMENTS			
(Check and adjust if necessary)			
Guide Opening – 7/8" +/- 1/16"	No	Yes	Yes
All Fasteners – Tighten if necessary	Yes	Yes	Yes
Limit Settings	Yes	Yes	Yes
Brake Pad Wear	No	No	Yes
Reversing Edge	Yes	Every Month	Yes
Coil Cord (see below)	Yes	Yes	Yes
(Check for proper operation & signs of damage)			

Be sure to check the Coil Cord has not been stretched. If it has stretched trim the excess off of the Coil Cord to prevent it from becoming caught during normal operation ensuring that there is still enough cord for the bottom bar to travel the full opening height without restriction. Failure to do so could result in damage to the door.

IN CASE OF DOOR IMPACT

Prior to performing any repair to the door, **DISCONNECT ELECTRICAL POWER** to the door system. A close inspection of the Vision Panel Hinges, Bottom Bar and the Reversing Edge is necessary for any signs of damage. In addition to the procedures listed below, always check limit settings, adjust if necessary.

IF CURTAIN IS PULLED OUT OF GUIDES

TURN THE ELECTRICAL POWER SUPPLY TO THE DOOR OFF.

Using the manual chain hoist, raise the door until the Bottom Bar is above the Front Guide Plate and just below the Drive Barrel. Lower the door ensuring that the Bottom Bar Arms and Curtain go into the Guides. Lower the door to the floor using the manual chain hoist. Cycle the door using the Operator being prepared to stop the door if it is not operating properly. Adjust the Limits if required.

DAMAGE TO THE BOTTOM BAR

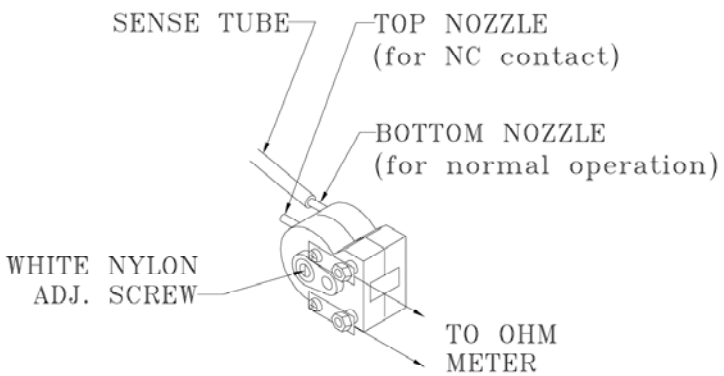
TURN THE ELECTRICAL POWER SUPPLY TO THE DOOR OFF.

If the Bottom Bar is bent, remove and straighten it before commissioning the door for normal operation. If the Bottom Bar is bent beyond repair, a new Bottom Bar must be ordered and installed before the door can be re-commissioned for normal operation.

DAMAGE TO THE GUIDE

The Guide must be straightened or replaced. The Guide Opening (the gap between the Back and Front Plates) must be 7/8" from top to bottom within 1/16" either way. If this cannot be achieved, new Guide parts must be ordered and installed before the door can be re-commissioned for normal operation.

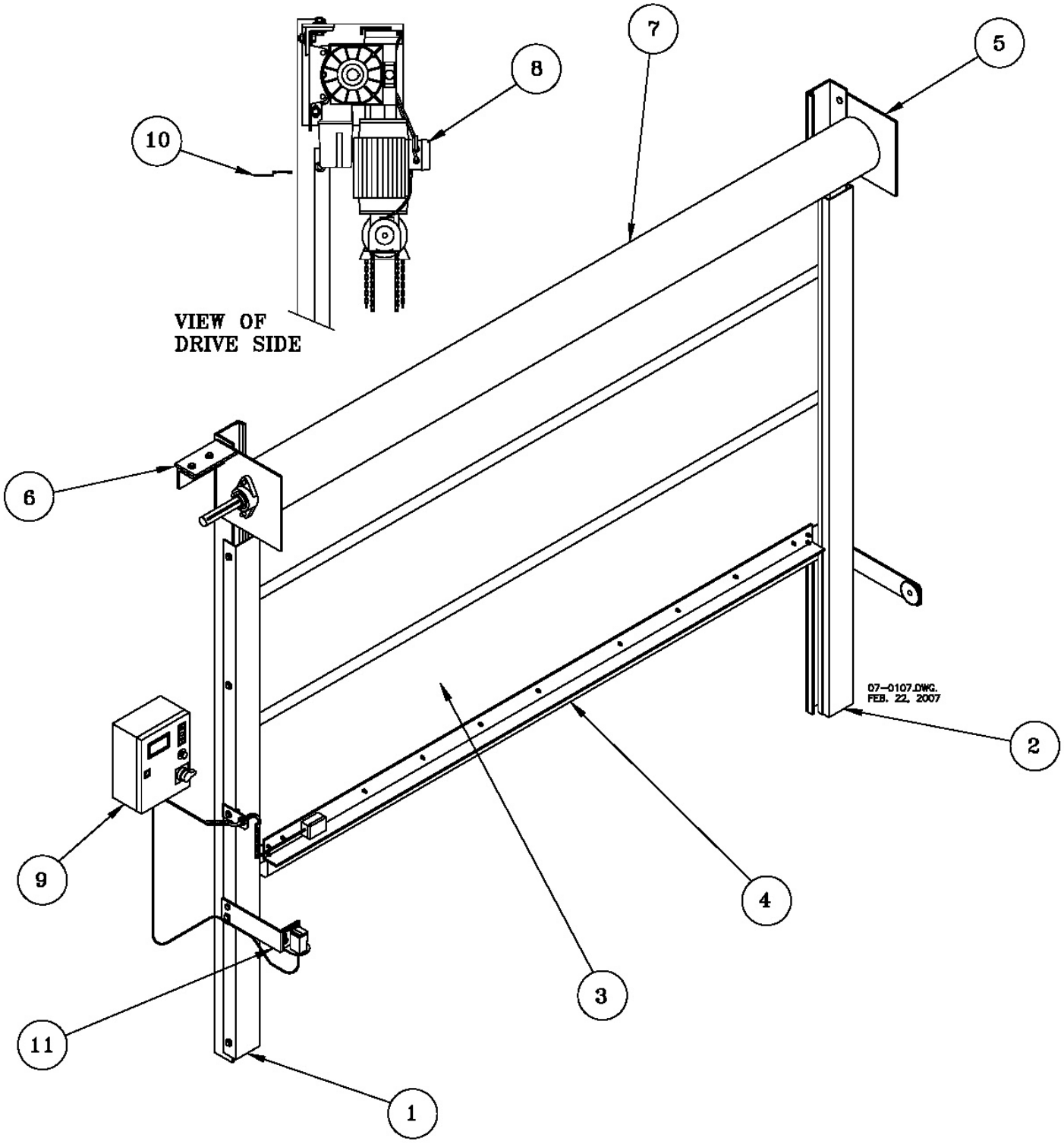
SET REVERSING EDGE SWITCH SENSITIVITY



1. Connect an OHM meter to the two (2) silver terminals.
2. Turn the white nylon screw counter clockwise until the meter shows the resistance to be indefinite.
   Do another half turn counter clockwise.
3. Slowly turn the white screw clockwise until the meter shows resistance. This is a reference point.
4. Turn the white screw counter clockwise by 3 or 4 marks on the switch housing. This will register indefinite resistance on the OHM meter and set the contact gap.
5. Replace the Switch Box Cover and test the door for proper operation.

PARTS LIST

(See next page for descriptions)



PARTS LIST (See previous page for diagram)

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D	UNITS
1	Left Guide Assembly – Complete		1	each
	(replacement Left Front Plate)		1	each
2	Right Guide Assembly – Complete		1	each
	(replacement Right Front Plate)		1	each
3	Curtain – Complete		1	each
4	Complete Bottom Bar Assembly – (specify handing)		1	each
	(replacement Bottom Bar only – non-handed)		1	each
	(replacement Reversing Edge – non-handed)		1	each
	(replacement Bottom Bar Arm – includes 2 pcs/side)		2	each
	(replacement Coil Cord c/w Clip)		1	each
	(replacement Reversing Edge Switch Assembly)		1	each
5	Free End Head Plate Assembly – (specify handing)		1	each
	(replacement Free End Head Bracket only)		1	each
	(replacement Drive Barrel Flanged Bearing)		1	each
6	Drive End Head Plate Assembly – (specify handing)		1	each
	(replacement Drive End Head Bracket only)		1	each
	(replacement Drive Barrel Flanged Bearing)		1	each
7	Drive Barrel Assembly – Complete		1	each
	(replacement Drive End Plug)		1	each
	(replacement Free End Plug)		1	each
8	Operator – Model GFA Direct Drive – Complete (see separate Operator Manual for replacement parts)		1	each
9	Control Panel – Complete (replacement parts see separate Schematic Drawing)		1	each
10	Brush Lintel Weather Seal		1	each
11	Reflective Photocell c/w Bracket & reflector		1	each

LIMITED WARRANTY

All HS-200 door systems manufactured by Service Door Industries are warranted from the date of purchase against defects in material and workmanship as follows: door system in general…One (1) year; and curtain (where applicable)…Two (2) year warranty against manufacturing defects.

If within this period of time any parts are found to be defective, new or re-manufactured parts will be furbished free of charge, F.O.B. our plant in Mississauga, Ontario, Canada, provided that the recommended installation and maintenance procedures (as outlined in this Installation Instructions and Service Manual booklet) have been followed.

This Limited Warranty does not include replacement parts due to normal wear and tear, damage beyond the control of Service Door Industries (i.e.: damage in transit, impacts etc.).

To validate your warranty the preventative maintenance schedule within this manual must be recorded and up to date.

Components such as counterbalance springs will have a specific warranty as per the specified cycles and be verified by a cycle counter.

This Warranty is limited, and in lieu of other warranties expressed or implied. There is no expressed liability due on the part of the seller.

An authorized Service Door Industries distributor from whom the purchase was made must make warranty claims, and the defective parts returned for verification within 15 days prepaid to:

Service Door Industries
1340 Midway Blvd
Mississauga, Ontario, Canada
L5T 2G8
Phone: (905) 670-1200
Fax: (905) 670-8830